

## ABSTRACT OF THE DISCLOSURE

In order to correctly perform frequency conversion without using a pilot signal from an external system in a CATV system in which an upward signal is converted to a high frequency in-building upward signal using an up-converter and the in-building upward signal is converted to the original upward signal using a down-converter, there is proposed a down-converter provided with a reference oscillation circuit for generating a reference signal with a frequency lower than that of a downward signal or the in-building upward signal. The in-building upward signal is frequency-converted using the reference signal and the reference signal is transmitted to a transmission line of the terminal side. A bi-directional amplifier on the transmission line can not only amplify the downward signal and the in-building upward signal bi-directionally but also transmit the reference signal to an up-converter of the terminal side. The transmitted reference signal is extracted in the up-converter and the upward signal is frequency-converted to the in-building upward signal.

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